Adam Mickiewicz University in Poznań

Faculty of Chemistry

***INNChem** - rozwój kompetencji doktorantów kluczowych w pracy o charakterze badawczo-rozwojowym*

"Design principles for nanoporous carbon-based materials in Energy Storage and Energy Conversion Applications"

Dr. Martin Oschatz
Professor (in replacement)
Inorganic Chemistry
University of Potsdam

Courses in chemistry or related disciplines

Field of science	chemistry
Teaching method	lecture
Language	English
ECTS credits	1
Numbers of hours	15
Aims of the course	The main goal of this course was to introduce PhD students into the field of materials chemistry with special focus on nanoporous and carbon-based materials, going from synthesis to characterization (covering both textural and chemical characterization), and finally their application in energy-related applications.
Course contents	Synthesis of nanoporous carbon-based materials with defined and hierarchical porous structure and atomic construction Fundamentals of physisorption techniques and phenomena Physicochemical characterization of nanoporous solids Nanoporous carbon-based materials in electrodes and catalysis
Prerequisites and co-requisites	-

Learning outcomes	
On completion of the course PhD candidates will be able to:	**Assessment mode**
Identify proper synthesis routes to achieve nanoporous materials with specific properties upon request	final exam
Identify and understand the physical background of appropriate characterization technique to evaluate a given physico-chemical characteristic in nanoporous solids	final exam
Identify potential fields of application for a given nanoporous material based on the structural properties	final exam

The course realized within the project number POWR.03.02.00-00-I023/17 co-financed under the Operational Program Knowledge Education Development of priority axis III: Higher education for economy and development, activities: 3.2 PhD studies

Literature	• Nanocarbons for Advanced Energy Storage, X. Feng (ed.), Vol.1, Wiley-VCH, 2015. • Carbon Materials and Nanotechnology, A. Krüger, Wiley-VCH, 2010. • Adsorption by powders and porous solids, F. Rouquerol, J. Rouquerol, K.S.W. Sing, P. Llewellyn, G. Maurin, 2nd Edition, Academic Press, 2013.
Additional information	Schelude: 2.03.2020, 10.00-11.30 and 13.00-14.30 3.03.2020, 10.00-11.30 and 13.00-14.30 4.03.2020, 9.00-10.30 and 11.00-12.30 and 14.00-15.30

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